Ultrasonic Wave Transmission In Periodically Undulated Plates

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Summary

This study focuses on quantifying the change in phase speed of waves transmitting through periodically undulated plates under pass band interaction. A perturbation technique is used to analyze the transmission of horizontally polarized guided waves in elastic plates with sinusoidal periodicity at their outerfaces. Phase speed of transmitting modes is presented as a function of various parameters, including outerface wavenumber, undulation amplitude, degree of undulations symmetry about the periodically undulated plate midplane, plate average thickness, arid frequency of propagation.